

Course Description Form

1. Course Name:	
Design and analysis of agricultural experiments	
2. Course Code:	
DAAE302	
3. Semester / Year:	
First semester – Autumn /2023-2024	
4. Description Preparation Date:	
1/2/2024	
5. Available Attendance Forms:	
Presence	
6. Number of Credit Hours (Total) / Number of Units (Total)	
2 theoretical + 3 practical / 3.5 units	
7. Course administrator's name (mention all, if more than one name)	
Name: Muthanna Fathi Abdullah Amar Raeed Mohamed Thmer	
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8. Course Objectives	
<p>Course Objectives</p> <p>theoretical:</p> <ul style="list-style-type: none"> - Enable the student to learn how to design experiments in the agricultural field in general and animal production in particular - Enabling the student to understand and apply all laws related to analysis processes and testing results - Enabling the student to choose the appropriate design for the experiment, how to distribute the parameters to the experimental units, and record the observations - Enabling the student to be able to collect data, classify and analyze it, conduct a significance test, discuss and interpret the results, and determine the best experimental parameters. - The student can analyze a study of several factors through a factorial experiment in an appropriate design by studying the levels of several factors in factorial coefficients to determine the best one. 	<p>practical: Enabling the student to learn how to read practical research data and analyze it well, and to understand how electronic statistical analysis programs such as SAS and SPSS work.</p>

9. Teaching and Learning Strategies

Strategy theoretical: -Interactive lecture -Brainstorming -Dialogue and discussion -Assigning tasks and reports -Learn about the implementation of direct applied field experiments	practical: - Assignment to team work - Assigning tasks and reports for each accountability
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10. Course Structure

Week	Hours	Required Learning Outcomes	Unit or subject name	Learning method	Evaluation method
1	2 Theoretical 3practical	theoretical: A1:Remembers measures of centering, mediation, and components of an analysis of variance table practical: A11: The student solves some examples of measures of concentration and dispersion	theoretical: Some statistical measures Examples and homework practical: Measures of concentration (mean, median, mode) and measures of dispersion (mean deviation, variance, coefficient of variation)	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
2	2 Theoretical 3practical	theoretical: A2: Learn about the basic concepts and basic rules in design, the requirements	theoretical: Chapter One (Introduction) practical: Completely randomized design (C.R.D.)	theoretical: Audio methods, writing style on the blackboard , direct	Short exams, assignments, discussions

		for a good experiment, and the steps that are followed in scientific experiments practical: A12: The student learns how to solve direct questions in a completely randomized design	and direct question solving method	dialogue method practical: Assigning tasks and reporting	
3	2 Theoretical 3practical	theoretical: A3:It mentions the definition, advantages and disadvantages of the design, and an analysis of variance table for a completely randomized design practical: A13: The student understands how to solve indirect questions in a completely randomized design	theoretical: Completely randomized design examples and homework practical: Some important laws in completely randomized design in solving indirect questions. Solve some indirect questions and give homework	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
4	2 Theoretical 3practical	theoretical: A4: Knows how to use appropriate testing to compare averages practical: A14: The student learns how to use and solve exercises related to testing averages	theoretical: Comparing averages examples and homework practical: Dent test Test for least significant difference	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions

5	2 Theoretical 3 practical	theoretical: A5: Duncan's test is used to compare means of coefficients practical: A15: The student learns how to solve questions in the Duncan test for comparison of means	theoretical: Comparing averages examples and homework practical: Duncan test	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
6	2 Theoretical 3 practical	theoretical: C1: Explains how to find an analysis of variance table if the numbers of repetitions are not equal practical: A16: The student benefits from solving completely randomized design exercises when the replicates are not equal	theoretical: Completely randomized design (if the numbers of replicates are not equal) Examples and homework practical: How to solve direct questions in a completely randomized design if the frequencies are not equal	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
7	2 Theoretical 3 practical	theoretical: A6: It mentions the definition, advantages and disadvantages of the design, and an analysis of variance table for the completely randomized block design practical: A17: The student understands how to solve straightforward	theoretical: Randomized complete block design examples and homework practical: How to solve direct questions in a completely randomized block design	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions

		exercises in a randomized complete block design			
8	2 Theoretical 3 practical	theoretical: A7: State the law of relative efficiency of a completely randomized block design compared to a completely randomized design practical: A18: The student learns about indirect questions in randomized complete block design and how to solve them	theoretical: Randomized complete block design (relative efficiency) Examples and homework practical: Some important laws in solving indirect questions Indirect questions in a completely randomized block design	theoretical: Audio methods, writing style on the blackboard, direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
9	2 Theoretical 3 practical	theoretical: A8: It mentions the definition, advantages and disadvantages of the design, and a variance analysis table for the Latin square design practical: A19: The student compares a completely randomized design with a completely randomized block design using the law of relative efficiency	theoretical: Latin square design Examples and homework practical: Relative efficiency and missing observations in a completely randomized block design	theoretical: Audio methods, writing style on the blackboard, direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
10	2 Theoretical 3 practical	theoretical: A9: The law of relative	theoretical: Latin square design	theoretical: Audio methods,	Short exams, assignments, discussions

		<p>efficiency of the Latin square design compared to the completely randomized design and the completely randomized block design is stated in practice: A20: The student learns about the design of the Latin square and how to solve direct questions</p>	<p>(relative efficiency) Examples and homework practical: Direct questions in Latin square design</p>	<p>writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting</p>	
11	2 Theoretical 3practical	<p>theoretical: C2:The rule for estimating the missing views in the Latin square design shows practical: A21:The student finds the key to the solution in the indirect question of the Latin square design</p>	<p>theoretical: Latin square design Examples and homework practical: Some important laws in solving direct questions Indirect questions in the Latin square design</p>	<p>theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting</p>	Short exams, assignments, discussions
12	2 Theoretical 3practical	<p>theoretical: A10:It mentions the definition, advantages and disadvantages of factorial experiments, and a table of analysis of variance for factorial experiments practical: A22:The</p>	<p>theoretical: Factorial experiments are examples and homework practical: Relative efficiency of the Latin square design</p>	<p>theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting</p>	Short exams, assignments, discussions

		student compares a completely randomized block design with a Latin square design using the law of relative efficiency			
13	2 Theoretical 3 practical	theoretical: C3: Shows how to find an analysis of variance table and an intercept curve for a factorial experiment using a completely randomized design practical: A23: The student benefits from using the Latin square missing view estimation rule	theoretical: Factorial experiments are examples and homework practical: Relative efficiency and missing observations in a Latin square design	theoretical: Audio methods, writing style on the blackboard, direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions
14	2 Theoretical 3 practical	theoretical: C4: Shows how to find the number of factorial coefficients, the equation of the mathematical model, and the interference curve for a factorial experiment with three factors practical: A24: The student learns about factorial	theoretical: Factorial experiments are examples and homework practical: Factorial experiments in a completely randomized design, a two-factor experiment	theoretical: Audio methods, writing style on the blackboard, direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions

		experiments in a completely randomized design and how to solve exercises for a two-factor experiment			
15	2 Theoretical 3 practical	theoretical: C5:Shows how to find an analysis of variance table and an intercept curve for a factorial experiment using a completely randomized block design practical: A25:The student learns about factorial experiments in a completely randomized design and how to solve exercises for a three-factor experiment	theoretical: Factorial experiments are examples and homework practical: Factorial experiments in a completely randomized design, a three-factor experiment	theoretical: Audio methods, writing style on the blackboard , direct dialogue method practical: Assigning tasks and reporting	Short exams, assignments, discussions

11. Course Evaluation

S	Calendar methods	Calendar appointment (week)	degree	Relative weight %
1	Theoretical final report + practical experience reports	theory week 15 practical week 1-15	7 theoretical + 6 practical	13%
2	Short test (1) Quiz	Week (3)	4 theoretical + 2 practical	6%
3	Midterm Exam (theoretical and practical)	Week (10)	10 theoretical + 5 practical	15%
4	Short test Quiz (2)	Week (12)	4 theoretical + 2 practical	6%
5	Final practical test	Practical exams week	20	20%

6	Final theoretical test	theoretical exams week	40	40%
	total		100	100
12. Learning and Teaching Resources				
Required textbooks (curricular books, if any)		designed and analyzing of agricultural experiments		
Main references (sources)		The methodological book specified by the Ministry		
Recommended books and references (scientific journals, reports...)		Lectures published by Iraqi universities		
Electronic References, Websites				


Theoretical subject teacher: Dr. Muthanna Fathi Abdullah

Practical subject teacher: M. Ammar Raed Muhammad Thamer

Chairman of the Scientific Committee: A. Dr. Muthanna Ahmed Muhammad Tayyib

Head of Department: A. Dr. Omar Dhiaa Muhammad